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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,729	08/28/2001	Fujihiko Kobayashi	6340-000021	5137

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EXAMINER
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GRAHAM, ANDREW R

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/940,729	Applicant(s) KOBAYASHI, FUJIIHIKO	
	Examiner Andrew Graham	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 5-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3,5-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed 12/7/2005 have been fully considered but they are not persuasive.

On page 4, lines 8-12, with regards to the content of the interview, the applicant has stated, "It was pointed out that the tape, while being flexible, is not elastic in that it does not return to its original position after being stretched. The analogy was made between the stretching of scotch tape and a rubber band. Clearly, the tape is flexible, but it does not return to its original position after it has been stretched". As was noted in the interview summary, the examiner respectfully submits that the terms of 'elastic' and 'flexible' are synonyms. This is substantiated by the dictionary and, thus, is not persuasive with regards to an alleged difference between these relative teachings of Doederlein and the pending claim language. Both terms share the common meaning of "able to endure strain without being permanently injured". In the applicant's remarks above, the applicant appears to be arguing the characteristics of springiness or resilience; it is respectfully submitted that such characteristics or properties are not conveyed by the terminology present in the previous nor pending claims, including the word 'elastic'. Although the claims are interpreted in light of the specification, it is respectfully noted that limitations from the specification, such as an alleged 'resilient' nature to the elastic member, are not read into the claims. It is further noted that the applicant has not established a

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special definition for the term 'elastic'.

On page 4, line 21-page 5, line 1, the applicant has stated, "Further, Doederlein et al. fails to disclose or suggest the plate member to be spaced from and out of contact with the sound board". The examiner respectfully disagrees. Doederlein clearly states that the diameter of the driver may be smaller than that of the aperture, (col. 4, lines 52-58). Thus, Doederlein clearly anticipates that the metal disc, as part of the driver (col. 3, lines 58-67) is out of contact with the sound board, so far as this is one of the few possible geometrical relationships available for a smaller diameter driver being positioned within an aperture, as is further discussed below.

On page 5, lines 3-4, the applicant has stated, "The rigid connection illustrates the lack of elasticity of the flexible tape". The examiner respectfully disagrees. Though described in the specification of Doederlein, no indication of tension or 'rigidity' is reliably or veritably illustrated in Figure 9. Regardless, the 'rigid' application of the flexible tape of Doederlein does not preclude the fact that the flexible tape anticipates a 'elastic member' claimed, when such a claim limitation or terminology is given its broadest reasonably interpretation in light of the specification. In the remainder of page 5 and 6, no further arguments, aside from those that have been directly or indirectly addressed above, have been presented. Accordingly, the responses listed above suffice to further explain and substantiate the basis of the rejections of the previous

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rejection, which are at least in part repeated herein.

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1 and 4** are rejected under 35 U.S.C. 102(b) as being anticipated by Doederlein et al (USPN 5641164). Hereafter, "Doederlein et al" will be referred to as "Doederlein".

Doederlein discloses a planer speaker device comprising a sound board and a piezoelectric driver.

Specifically regarding **Claim 1**, Doederlein teaches:

A piezo-electric speaker (24, as part of 10; Figure 2; col. 2, lines 47-51; col. 3, lines 7-15 and 40-47) comprising

a piezo-electric member (62) generating a strain according to an electric signal applied thereto (function of piezoceramic, col. 3, lines 58-60),

a piezo-electric vibration plate (64) coupled with and suspending said piezo-electric member (62) and converting the strain to the acoustic vibration (function of metal disc, col. 3, lines 58-60 and 66-67; col. 4, lines 1-7); and

a sound-board (56) resonating to the acoustic vibration (col. 3, lines

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62-67; col. 4, lines 1-2 and 43-46),  
said piezo-electric member (62) having an area (illustrated by width, Figure 9) smaller than said piezo-electric vibration plate (64) so that said piezo-electric member (62) is spaced from and out of contact with said sound board (56) (Figure 9)  
an elastic member (66, "flexible") supporting the piezo-electric vibration plate (64) on the sound-board (56) for generating a sound from the sound-board (56) transmitted thereto from the piezo-electric vibration plate (64) via the elastic member (66) (tape causes minimal damping, while rigidly coupling 56 to 52; col. 4, lines 1-4 and 43-58; coupling causes vibrating of soundboard 56 in unison with driver 52)

said piezo-electric vibration plate (64) supported at its periphery (outer portion, beyond 62) by said elastic member (66, flexible tape) such that said piezo-electric vibration plate (64) is spaced from and out of contact with said sound board (56) (col. 4, lines 54-56 notes that the driver 52, which includes plate 64, may have a diameter smaller than that of the aperture; thus, the plate with a smaller diameter mounted in the aperture with a larger diameter in the manner shown in Figure 9 would inherently result in the plate being out of contact with the aperture wall in at least one point, which meets the broadest reasonable interpretation of the claimed "spaced from and out of contact"; the relative geometries also inherently teach that the plate may be entirely out of contact with the aperture wall while being mounted in the aperture, which is another interpretation of "spaced from and out of contact")

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the acoustic vibration caused by the piezo-electric vibration plate being propagated from the sound-board to the ambient air to generate a sound ("rigidly coupled", col. 4, lines 43-58).

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. **Claims 3 and 5-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Doederlein as applied above, and in further view of Yamada (USPN 3721840).

As detailed above, Doederlein discloses a planer speaker device comprising a sound board and a piezoelectric driver. AS is generally shown in Figure 9, the transducer element (52) of Doederlein is supported within a gap or opening of a surrounding structure (56). The securing component of this support is tape (66) which is adhered to both piezoceramic element (62) and metal plate (64). Regarding Claim 3, Doederlein does not clearly specify: the elastic member is adhered to the whole surface of the piezo-electric vibration plate.

Yamada discloses a sound generator that comprises a piezo electric element supported within an opening in a support structure. Parallel to the structure of Doederlein, the generator of Yamada comprises a piezoelectric member (1), a wider plate (3), and an elastic or vibratory member (4) (col. 1, lines 42-48; Figure 1).

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Specifically regarding **Claim 3**, Yamada teaches:

the elastic member (4) is adhered to the whole surface of the piezo-electric vibration plate (3) (col. 1, lines 40-48; Figures 1 and 4).

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to implement the piezoceramic element of Doederlein on the side of the plate opposite the vibratory element, as is disclosed in the teachings of Yamada. The motivation behind such a modification would have been that such an arrangement would have provided an additional layer of physical protection for the piezoceramic component of Doederlein, shielding the component from externally introduced pressures, such as from fingertips. It is particularly noted that Doederlein teaches that a piezoceramic may be placed on the other side of the metal plate (col. 4, lines 4-7).

Regarding **Claim 5**, Doederlein in view of Yamada teach:  
a vibration transmitting member (4 of Yamada) having a vibration propagating velocity higher than that of the sound-board (56 of Doederlein) for supporting the periphery of the piezo-electric vibration plate (4 supports edges of electrode 3, Figure 2 of Yamada; col. 2, lines 10-14) (the plate 4 of Yamada has higher sound propagation than sound board of Doederlein because the plate, made of a synthetic resin such as polyethylene terephthalate (col. 1, lines 51-53; col. 2, lines 1-4), is more dense than the sound board of Doederlein, which is made of a resin foam (col. 3, lines 62-65). The propagation of sound in a medium varies in a manner proportionate with



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the density of the transmission medium. The use of the type of plate of Yamada for securing the member of Doederlein would have been the enabled thickness selection for maximizing the transducing efficiency, at least over the area of the affixed piezoelectric driver).

the vibration transmitting member (4) being mounted in an aperture formed in the sound-board (located in opening of support 5, analogous to opening of sound board of Doederlein; col. 1, lines 48-51, wherein for this rejection, the support 8,9 is considered equivalent of the elastic member).

Regarding **Claim 6**, Yamada particularly teaches:

a vibration transmitting member (4 of Yamada) having a vibration propagating velocity higher than that of the sound-board (56 of Doederlein) for supporting the periphery of the elastic member (8 or 9 in view of 66 of Doederlein) (at least the edge of 8 or 9 is supported by 4; col. 2, lines 29-36; please see rejection of Claim 5 above regarding the limitation of vibration propagation);

the vibration transmitting member (4 of Yamada) being mounted in an aperture formed in the sound-board (located in opening of support 5, analogous to opening of sound board of Doederlein; col. 1, lines 48-51).

Regarding **Claim 7**, Yamada particularly teaches:

the vibration transmitting member is a circle-annular vibration ring (4, embodiment of Figure 2, with opening 7) (col. 2, lines 10-28)

Regarding **Claim 8**, Yamada particularly teaches:

the vibration transmitting member (4, embodiment of Figures 1,4) is a

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plate-shaped vibration board (col. 1, lines 46-51)

**Conclusion**

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is 571-272-7517. The examiner can normally be reached on Monday-Friday, 8:30 AM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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April 3, 2006



**SINH TRAN**  
**SUPERVISORY PATENT EXAMINER**